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REPORT

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REPORT MAGAZINE

HIGH SCHOOL NEWS SERVICE REPORT

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Circulation Manager

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On the cover

FRONT: Instructor demonstrating proper classroom techniques in using training aids.

BACK: Navy Technician testing electronic equipment.

Man's best friend

As long as there have been wars, dogs have been used in actual combat or in direct support of combat operations. During World War I, vast numbers of dogs were used as sentries, ammunition carriers and casualty dogs.

The Canine Corps was established during World War II, training more than 10,000 dogs for wartime use. Vietnam has been no exception.

Responsibility for training military dogs for combat in the U.S. Armed Forces was transferred to the Air Force from the Army in 1958. The dogs are trained at Lackland AFB, Tex., Kadena AB, Okinawa and Wiesbaden AB, Germany.

German Shepherds, because of their adaptibility, are the only dogs used. They were selected as the most suitable breed because of their demonstrated traits of keen sense of smell, endurance, reliability, speed, power, tracking ability, courage and suitability to almost any climatic condition.

The procurement center at Lackland will pay up to $150 per dog or accept donations of qualified German Shepherds.

Eligible for evaluation are male or spayed female German Shepherds weighing 60 pounds or more; one to three years old; and standing at least 23 inches at the shoulder. Pure white dogs are not accepted because they are easily seen at night and are more prone to skin disorders.

The dog and his handler are trained for eight to twelve weeks depending upon what type of assignment they are to receive. From the very beginning of training, the dog is never permitted to ignore a command nor does he fail to carry it out completely. He is never led to suspect there is anything for him to

do but obey.

Since a dog does not understand right and wrong according to human standards, rewards and punishments are the means of teaching the subject areas desired. Serious punishment is used only as a last resort and only for deliberate disobedience, stubbornness, or defiance.

The word "no" is used to indicate to the dog that he is doing wrong. "No" is the only word ever used as a negative command. Never does the handler strike the dog with his hand. The hand must be recognized as an instrument of praise rather than an instrument of fear.

A dog's world differs from man's in several specific ways. One important difference is that a dog's vision is inferior to man's. This does not hinder the dog's usefulness since he depends less on vision and more on his superior senses of hearing and smell.

Of all his senses, smell is the keenest. If a dog wishes to examine something from a distance, he will move downwind and do it by smell. For this reason, dogs have become quite useful in jungle warfare.

Dogs accepted into military training remain the property of the Armed Services throughout their useful lives. Whenever they serve, dogs receive the best possible housing, feed and care.

Until recently, dogs serving overseas were not allowed to return to the U.S. It was widely feared that their return would encourage the spread of contagious disease.

Now, due to increased prevention measures of diseases they are being reassigned to the states.

Since 1968, dogs have been trained as patrol dogs rather than sentry dogs. The same type of canine is used for both, but they differ in training.

A patrol dog is used for security purposes such as guarding military bases or anything regarding a high degree of security. Dogs selected as patrol dogs must have more composure and be more controllable than a sentry dog. He is trained only to detect unauthorized intruders and will attack only on command from his handler.

The patrol dog has the ability to discriminate between a definite threat or acceptance of a person, by his handler's attitude toward the person. He will always remain alert but is not disturbed by strangers moving about him. He maintains the same degree of obedience on or off the leash.

The patrol dog having the same aggressiveness as a sentry dog will attack an intruder but may be called off the attack at any point by his handler.

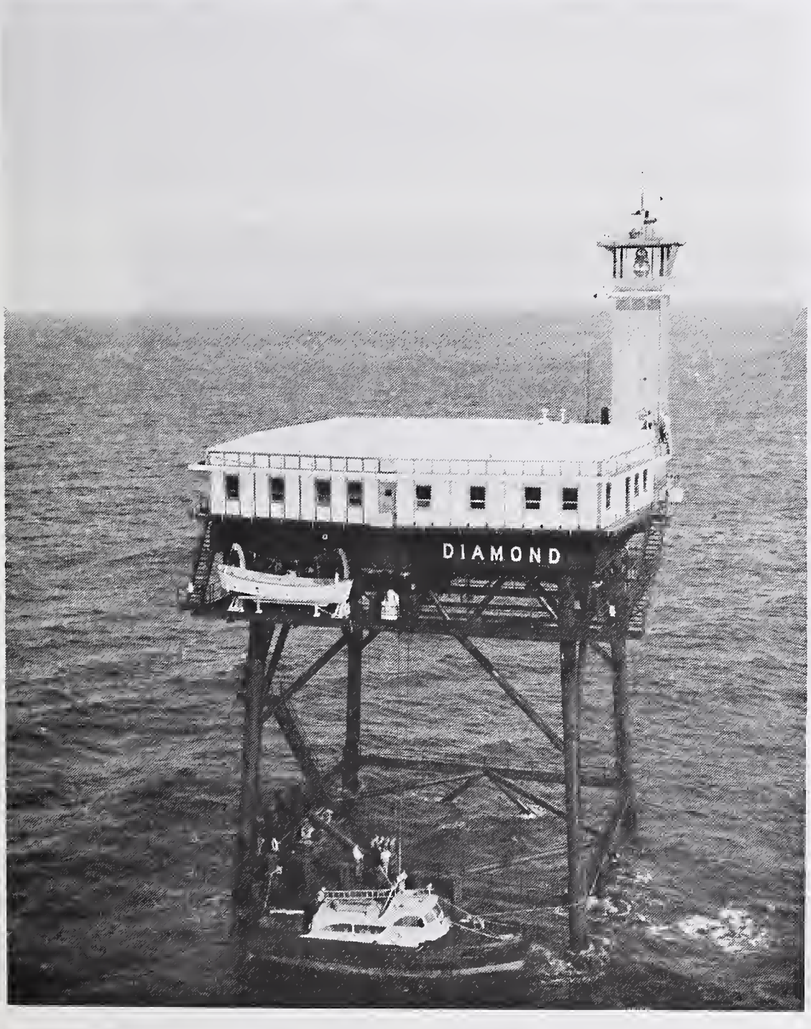
In Vietnam, dogs have seen action as scouts, sentries, and trackers with the Army, Air Force, and Marines and have been credited with saving a countless number of lives. One prime example is a German Shepherd named King Kaiser. While under a sudden and fierce Viet Cong attack, he died protecting his wounded master from the enemy. For his heroism, a Marine dog training camp on the outskirts of Danang was named Camp Kaiser.

As long as there are American troops in combat, man's best friend will probably be there to serve and protect him.

Coast Guard Stations

HELP WANTED: Man willing to be trained in small boat handling and maintenance. He must also be ready to learn teletype and short wave radio operation. The man who accepts this job must be ready to handle a small boat in rough seas. He will work for eight hours-per-day but he must be ready to work at any time of the day or night, seven days-a-week.

Diamond Shoals Light Station off Cape Hatteras, N.C.



Does the job offered above sound ridiculous? If you think that no one would take a job with such demands, you're wrong. It is the description of the job of a Coast Guardman on duty at a Coast Guard station.

There are three types of Coast Guard stations; Life boat stations with the primary duty of search and rescue; Light stations which are Coast Guard operated light houses, and LORAN stations which provide long range aid to navigation.

In 1969 there were more than four thousand boating accidents which claimed the lives of almost 1,400 persons and injured about one thousand more in one state alone. It is the job for the men at a Coast Guard life boat station to assist at the scene of a boating accident and help prevent accidents by enforcing boating safety laws.

Life at a station can be one of extremes. The winter months on the Great Lakes may seem like an endless progression of days filled with painting and swabbing, while the summer months may keep one or more boat crews in the water on emergency call 24 hours-a-day.

The sudden summer storms on the

Forty-foot Coast Guard vessels used to patrol the Alaskan coastline.

lakes and the summertime mariners keep the Coast Guardmen busy with a variety of calls ranging from capsized boats to worried wives who aren't sure whether their fishermen husbands are adrift on the lake or adrift somewhere else.

There are about 150 stations in the United States, along both coasts and in the Great Lakes region. In recent years some stations have been decommissioned due to the increasing role that the helicopter has played in search and rescue missions.

The speed and ability of the helicopter to get to the scene of an accident in a short time has made it a major Coast Guard tool. One station with helicopter assistance can cover a much larger area than was possible in

Cleveland Lifeboat Station, Cleveland, Ohio.

U.S. Coast Guard, Ocracoke Station, Ocracoke, N.C.

the past.

Although the number is decreasing, a station can conduct more effective search and rescue operations through the use of the helicopter.

Lighthouses have been manned and operated by the Coast Guard since 1939. Many life boat stations are built at the site of a lighthouse.

The tallest light in service is the 191-foot Cape Charles, Va., tower. The highest light is mounted on a 43-foot tower but is 422 feet above the Pacific at Cape Mendicino, Calif. It can be seen from 28 miles away. Although at one time light towers and light houses were operated manually, most modern lights are operated by remote control.

While light stations provide a visual aid to navigators, Coast Guard LORAN stations provide radio aid to navigation. The word LORAN comes from the phrase Long Range Aids to Navigation.

LORAN is an electronic system whereby two stations situated 200 to 1000 miles apart transmit synchronized signals. These signals are received aboard ship by a LORAN receiver which measures the interval between the times of their reception in millionths of a second.

By getting a LORAN reading from one set of stations a ship or plane can determine its longitude. Then by getting a reading from another set, the vessel can determine its latitude. LORAN stations are valuable to ships and planes in bad weather navigation.

LORAN station duty is great for catching up on your reading or developing a hobby. Most of them are located in remote areas too far from any place else to make liberty practical.

Although the complicated radio equipment must be constantly checked and monitored, a man has plenty of spare time. In addition to games, movies and sports, LORAN stations provide an excellent opportunity to complete correspondence courses. Many men use this duty to begin their college education.

Long hours and hard work may not sound like the greatest job in the world, but it is a job that must be done and for the Coast Guardmen who do it, it is the most rewarding job there is.

Instructor Training

When a commanding officer approves the application of one of his petty officers for Instructor Training (IT) School, he knows that he may be losing one of his best men if that application is approved. Before the commanding officer grants such a request, he has already determined that the man is an expert in his rating, and has the high qualifications required of Navy instructors.

The school's requirements are few but explicit. The potential Navy instructor must have an untarnished service record, display outstanding leadership and demonstrate exemplary military bearing and appearance.

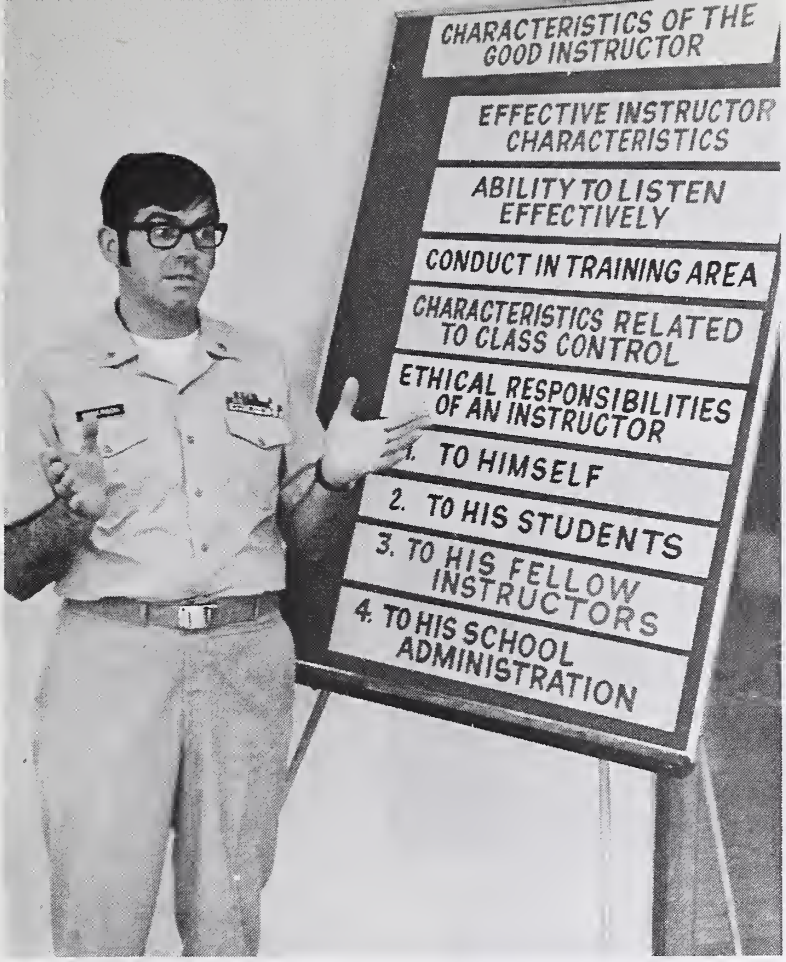
Most IT students are at least second class petty officers, although a few college graduate third class petty officers and seamen are accepted. The majority are career Navymen with an average of 10-12 years service. Their average age is 30.

These students represent all ranks and rates — from seamen to commander — from boatswain mates to personnelmen. WAVE officers and petty officers as well as students from allied navies are frequently enrolled.

Instructor Training Schools are located at three Navy bases. Schools at Norfolk, Va., and San Diego serve the fleets on their respective coasts, while the Great Lakes, Ill., location receives students who will be assigned within the continental United States.

The job of turning a highly skilled technician into a competent instructor is a tough one. The Navy gives its IT School instructors five weeks to accomplish that task. Students are qualified under conditions that closely resemble their future classrooms. Great emphasis is placed upon the development of proper attitudes and the principles, methods and techniques of effective instruction.

The curriculum itself provides the basis for this development. Student


CHARACTERISTICS OF THE GOOD INSTRUCTOR
EFFECTIVE INSTRUCTOR CHARACTERISTICS
ABILITY TO LISTEN EFFECTIVELY
CONDUCT IN TRAINING AREA
CHARACTERISTICS RELATED TO CLASS CONTROL
ETHICAL RESPONSIBILITIES OF AN INSTRUCTOR
1. TO HIMSELF
2. TO HIS STUDENTS
3. TO HIS FELLOW INSTRUCTORS
4. TO HIS SCHOOL ADMINISTRATION

instructors discover the factors that affect learning and study. Outside noises, lighting, positioning of students in the classroom, student behavior and even the instructor's behavior are some of the keys that must be viewed as affecting the learning process.

Some students are surprised to learn that teaching a military class does not guarantee instant order. As one staff member at the Great Lakes school put it, "The instructor must be the classroom leader, not its dictator. Being fair, firm, and friendly — and it's best to look at it in that order — is very important."

Learning "what not to do" is as important as learning "what to do." Keeping your hands out of your pockets and avoiding a monotone delivery are examples of negative instructor characteristics.

Student instructors are taught how to arrange a curriculum, analyze and organize subject matter and write lesson plans. Nothing is left to chance.

To help the future instructor become an effective communicator, he is coached in every facet of instruction techniques.

The school is well equipped with training aids and devices. Overhead, slide, and motion picture projectors, flannel graphs, closed circuit television, and more of the most modern equipment is available for the student instructor's training.

Proper use of these training aids is an important factor when students deliver a practice teaching session to the rest of their class. Presentations (five are required) range from 15 to 40 minutes in length and may be on any subject except religion or sex. Numerous other short and sometimes extemporaneous presentations are required during the course.

Practice teaching sessions are critiqued and graded. Fifty percent of a student's grade comes from his presentations and the other fifty percent is based on the results of weekly examinations.

Students not only take exams, they must learn to write and evaluate them. Question preparation is an important part of any teacher's skills and every Navy instructor must develop that skill. He must also learn to evaluate other instructors on their exams and classroom presentations.

An introduction to "program instruction," an educational method allowing a student to progress at his own speed while learning a subject, is also included in the course.

The course is jam packed and most students burn some "midnight oil." They must be highly motivated and desire to be good instructors or they are apt to fail the program, school officials stress. The technical competence of the Fleet rests on the quality of instruction the IT School graduate will present at any of the Navy's many technical schools.

Most graduates attend an additional two week leadership course. Advance training ranging from two to three weeks is also available covering such subjects as program instruction, closed circuit television and school administration for service school supervisors. Two week instructor and administrative schools are also held for Navy reservists.

Some 9,000 students graduate annually from the three IT Schools and are continually replacing approximately the same number who are completing tours of duty as instructors or retiring. Some 250 activities, including service schools, recruit training commands, Fleet training activities, reserve units and maritime academies use enlisted and officer IT School graduates.

Instructor duty is not only an opportunity to teach but an opportunity for further learning. Through teaching, the instructors keep continually aware of innovations in their technical field. They return to the Fleet technically updated.

An instructor from the Fleet contributes firsthand experience to his students. His is the challenge of training better qualified men to the needs of a rapidly changing modern Navy. Instructor Training School is the key to his success.

Helicopter Crew Chief

The ability to become an accomplished backyard mechanic from the household do-it-yourselfer, is one thing, but to be a helicopter crew chief, is another.

While the backyard mechanic tinkers with engines priced from two to $30,000, the crew chief works with machines worth up to two million dollars. He is more than an ordinary mechanical analyst and repairman, he is also a sheet-metal repairman, riveter, loadmaster, special equipment operator and door gunner.

Specifically, taking human lives as the most important consideration, a helicopter crew chief has a heavy responsibility in assuring that no mechanical failure occurs on the helicopter—there is no allowance for a mistake in the air.

A crew chief gains this knowledge and responsiveness through attendance at one of several helicopter maintenance schools. Selection for attendance is rigorous and exhaustive, only the best men are selected and those, too, must have a high aptitude in mechanics.

The Army service schools instructing in helicopter maintenance are located at Fort Rucker, Alabama, and Fort Eustis, Virginia, with the students specialty determining how long the course will be. Presently, the courses run from eight to 16 weeks in length depending on the amount of maintenance instruction required for a specialty.

Classes are highly sophisticated, combining classroom instructors with closed-circuit TV, training aids and on-the-spot maintenance instruction. Instructors are qualified helicopter mechanics from the senior ranks and quite often civilians, but all backed by years of experience and knowhow.

Preventive maintenance and the standard operating procedures for a helicopter are discussed in great detail through precise, step-by-step instructional periods, utilizing practical application by qualified student aides.

Upon graduation, the helicopter crew chief will be assigned to a unit and placed on an on-the-job training status (OJT).

He will remain on OJT until he receives his own helicopter and assumes the duties as crew chief.

As a fully-qualified crew chief, his day will normally begin with the preflight inspection of the helicopter. During the inspection, all fluids are thoroughly checked for leakage and all metal parts are checked for cracks, dents and holes which may make the metal brittle under stress and strain.

Another critical area is the slippage of bolts, nuts and rivets. After the crew chief has tightened the loose items to meet specifications, a small amount of paint is applied, allowing that problem area to become more visible.

The crew chief is also responsible for keeping a continuous maintenance record, called an Aircraft Log Book, for each and every fixed or rotary-wing aircraft he will be assigned to.

During actual flight operations, the crew chief acts as the aircraft's "loadmaster." He locates ammunition, supplies and equipment on the helicopter to insure proper center of gravity and weight distribution is reached. He orients passengers to safety procedures, seating them and assisting in securing all seat belts.

Serving in a dual role as a "door-gunner," the crew chief has the responsibility of protecting his helicopter from enemy ground fire. He is taught the techniques of "door-gunnery" through a 36-hour course consisting of marksmanship, tactics, and maintenance of weapons, as a part of his maintenance training.

Also, during his formal maintenance instruction, the fundamentals of rotary-wing flight are taught in conjunction with the normal operating procedures of the aircraft. Although, the crew chief does not actually fly the aircraft, the instruction enables him to fully understand the helicopters operation and allows him to run the engines up in performing a thorough maintenance inspection.

The crew chief carries a heavy burden of responsibility on his shoulders. The weight is lifted considerably through the proper training and guidance of skilled personnel. From a backyard mechanic to a helicopter crew chief. . .he's come a long, long way.

Crew Chief aiding pilot in cargo pick-up.

The uncommon cold

If someone asked: How cold is snow? How cold is dry ice? How cold is cold? Would you know?

If you didn't, cryogenics would be the source for answers.

The science of cryogenics, is the study of low temperatures ranging from -150 to -450 degrees Fahrenheit.

Cryogenics [Liquid Oxygen (LOX), Nitrogen (LIN) and Argon] was a strange and unknown word to but a handfull of individuals a little more than a decade ago.

Today, it is widely known and used throughout the military services as well as industry and is as important as the air we breathe.

The atmosphere around us is made up of a little better than 78 per cent nitrogen, 21 per cent oxygen and less than one per cent argon.

The word cryogenics is derived from the Greek words "kryos" and "genes," which means the "creation of icey cold."

Liquid oxygen and LIN are manufactured in military plants in cycles lasting 240 hours or 10 days. When a plant is started up and a stabilized temperature of -297 degrees F. is obtained, the air from the atmosphere is compressed at a high temperature causing the gases to expand. By using temperature control the air is cooled and filtered and unusable gases withdrawn, leaving 99.5 per cent pure

Transfer of liquid oxygen from storage tank to portable container.

oxygen and nitrogen.

Most military LOX plants are capable of producing 18 gallons of LOX or 24 gallons of LIN per hour.

When LOX is converted into a gaseous state it is used by hospitals for oxygen tents and other medical facilities and for breathing apparatus used by military pilots for high altitude flying. Nitrogen in its gaseous form is used as a propellent for fire fighting units, inflating airplane tires and for hydraulic systems. It is also used in fighter aircraft as a coolant for sophisticated weapons systems. Argon is used in incandescent light bulbs, radio tubes, etc.

Since the early 1950's LOX has been in constant use as an oxidizer for missiles employing liquid propellents. With the tendency of LOX to change to a gaseous state at temperatures above -297 degrees F, it must be fed continuously into a space vehicle during pre-launch operations. Remote control valves allow for uninterrupted fueling up to 17 seconds prior to lift-off. This is necessary to maintain 100 per cent LOX load at lift-off.

When LOX and LIN are procured from commercial sources, they are stored in highly insulated 500-gallon stainless steel tanks until ready for use.

Stainless steel was found to be the most resistant to the structural changes that LOX imposes upon most metals. Each line in the system has built-in expanders to compensate for expansion and contraction.

Though cryogenics existed for years on a limited basis in industry, it was during the past decade that industrial gases and cryogenics materialized as broad based industries with the widespread adaption of Basic Oxygen Furnaces in steel making.

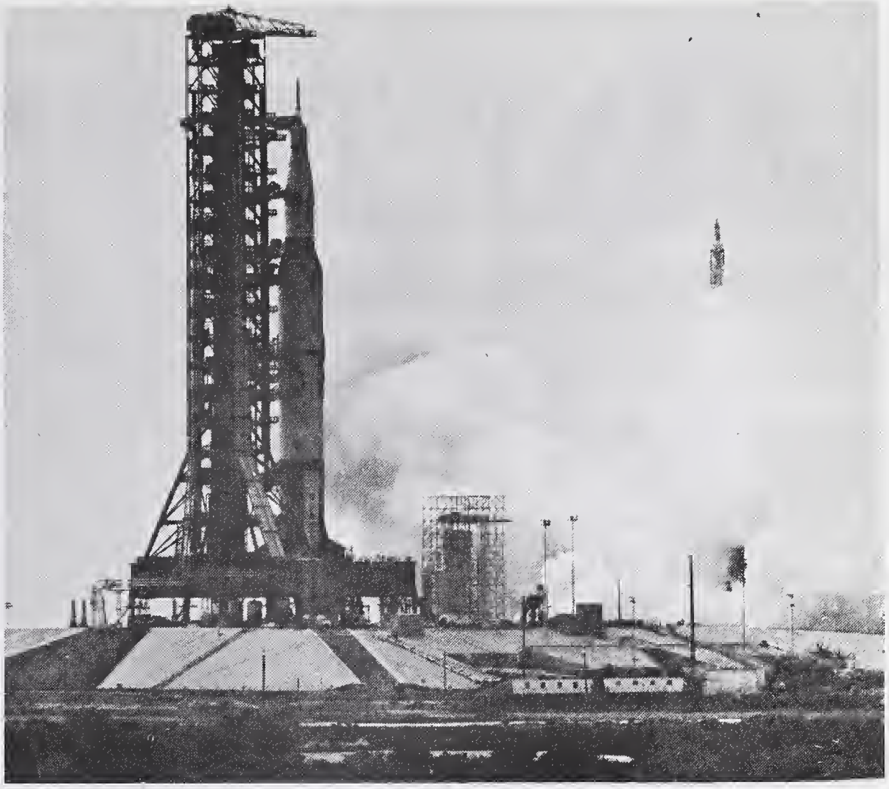
Applications are being and/or have been developed for the use of oxygen in the copper and aluminum industries and has been utilized in the production of uranium.

Cryogenics hardware, welding and cutting equipment, storage vessels, in-transit refrigeration systems, food freezing equipment, liquid nitrogen food freezing systems and hospital equipment are but a few of the uses created by cryogenics.

The electronics industry is a big consumer of industrial gases and nitrogen is the mainstay. Nitrogen can be used more readily to inert rather than propel chemicals and solvents in electronic manufacturing operations.

This by no means is the end use of liquid oxygen. Presently, the commercial producers of LOX, under grants from the Federal Water Pollution Control Administration, are conducting experiments with it to combat municipal and industrial water pollution.

Just as raising the temperature of matter requires an addition of energy, lowering it requires the removal of energy. This is the fundamental basis for the use of cryogenics.



An aircraft's life support system receives liquid oxygen.

NAVY TECHNICIAN

From the era of "wooden ships and iron men" the U.S. Navy has evolved into an organization of nuclear–powered ships and the best educated men — and women — in Navy history. The impact of the technological revolution and the space age has been at least as great at sea as on land.

Sleek ships cruise the far reaches of the seas — and under the seas — for months, powered by only a few pounds of nuclear fuel. They are equipped with electronic "eyes and ears" that can detect a submarine deep beneath the waves, an aircraft miles above or even debris floating on the water, and, at distances undreamed of even a few years ago. Aboard these ships and fleet aircraft are missiles and other weapons aimed, armed, fired and guided to target by systems of computers, radars, infrared, acoustic and heat sensing devices. It is, as Navy technicians phrase it, "the era of the black box."

At the risk of over–simplification, it might be said that the role of the Navy technician today is "the care and feeding of the electronic black box."

With the increasing demand for highly skilled and trained technical experts, the Navy has had to develop a vast system of technical training facilities and advanced teaching methods and tools. As one of the world's largest technical training institutions, the Navy offers schooling at basic and advanced levels in the wide range of specialty fields.

The training of a Navy technician begins with his first day in uniform — at recruit training centers in Illinois, California or Florida. Here the groundwork is laid for the years of training and service experience to come. From recruit training the men who enlisted under a school guarantee program will report directly to Class "A" schools to learn technical specialties before serving in their first duty assignments.

Other graduating recruits who are qualified (qualifications vary according to the technical field but education is always important — the more the better) may also be ordered directly to Class "A" schools. "A" schools vary from a few weeks to a few months in length and provide a solid foundation in the fundamentals and principles of a technical discipline.

The best qualified graduates of many of these "A" schools are selected to continue training at more advanced levels. Others will report to duty aboard ships or with air units or shore stations.

Of the men who were not selected for schools immediately after recruit training, many will apply for and be chosen to attend one or more schools later in their enlistments.

In addition to the extensive training and school system operated by the Navy, many schools run by private industry are utilized in the technical education of Navymen. Beyond this the Navy conducts "NESEP" (Navy Enlisted Science Education Program, which provides four years of college training and a commission) and "ADCOP" (Associate Degree Completion Program, which offers two years of college) for highly qualified and motivated young men.

The rewards of the Navy technician can include accelerated promotions, proficiency pay (over and above regular base pay) and excellent opportunities for a college degree and/or an officers commission.

Representative of the training programs for Navy technicians are the following:

ELECTRONICS TECHNICIAN (Advanced Electronic Field Program) — 36 weeks of "A" school, 12 weeks shipboard indoctrination and 2 to 19 weeks "C" school.

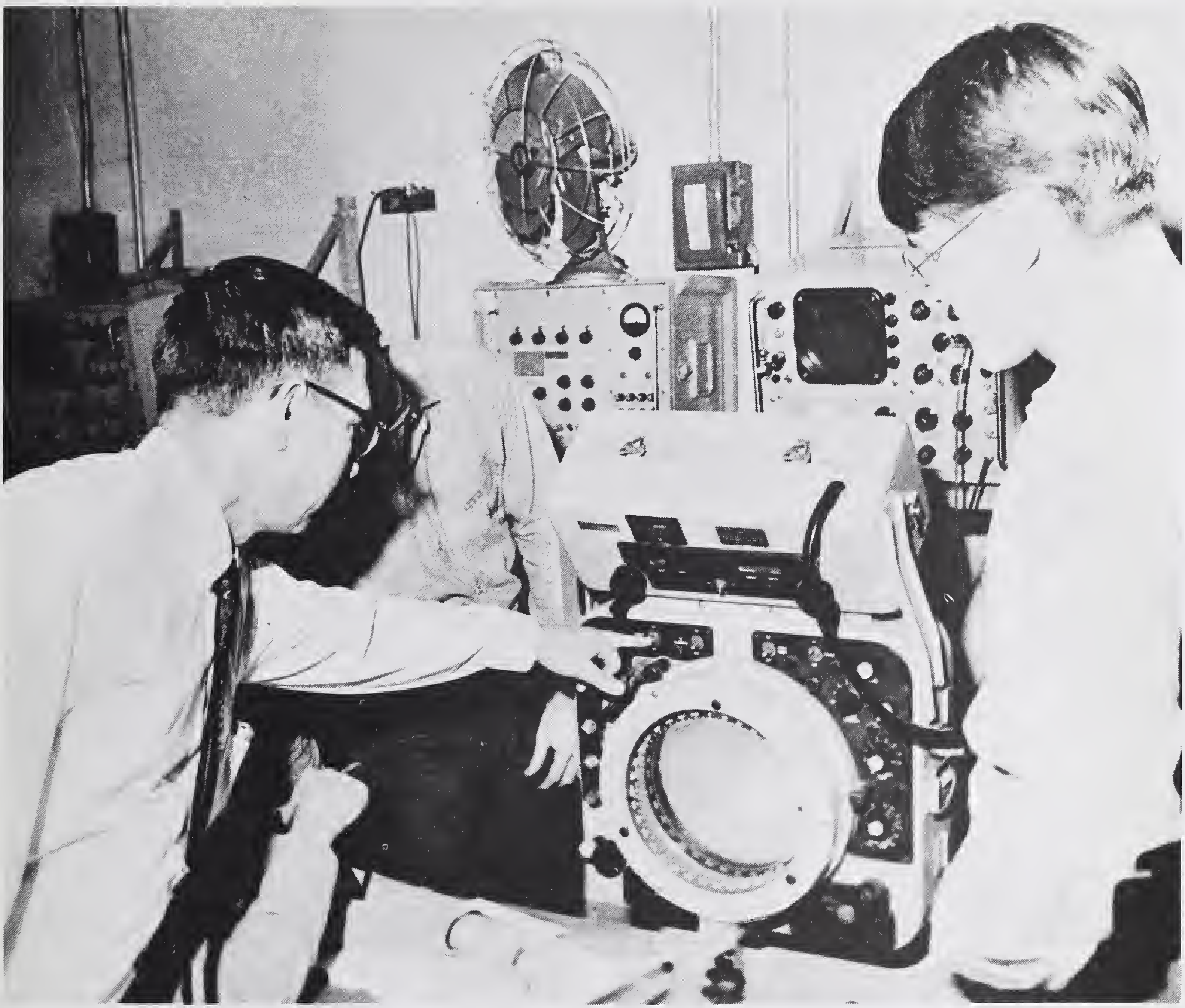
ELECTRONICS TECHNICIAN (Nuclear Power Field) — 36 weeks of "A" school, 26 weeks Nuclear Power Course and 26 weeks Nuclear Power Prototype.

DATA SYSTEMS TECHNICIAN — 6 weeks basic electricity and electronics, 8 weeks "A" school.

DATA SYSTEMS TECHNICIAN (Advanced Electronics Field Program) — 6 weeks basic electronics, 32 weeks "A" school and 6 to 18 weeks "C" school.

FIRE CONTROL TECHNICIAN (AEFP) — 32 weeks "A" school, 20 to 31 weeks "C" school (and for submarines another 8 weeks submarine school).

These are only a few examples of the many Navy technical fields which provide hundreds of classroom hours of intensive training. In many other jobs the initial training is of somewhat shorter duration (6 to 20 weeks) with a variety of advanced schools available after time has been spent in a regular duty assignment. An example of this is the INSTRUMENTMAN field which is entered via 17 weeks of "A" school



Navy students being trained on electronic equipment.

(office machine maintenance, fundamentals of hydraulics, mechanics and pressure, functions of gauges, tachometers, flowmeters, etc.)

After the IM School graduate has acquired on–the–job experience and the rating of second class petty officer (which requires two years in service) he is eligible for one or more of three "C" schools — clock and watch repair (16 weeks), adding machine repair (14 weeks) or calculator repair (18 weeks).

To take another example — SONARMAN — 18 weeks of "A" school can be immediately followed by advanced courses of 26 to 32 weeks duration. Those sonarmen who report to the fleet following "A" school instead of undergoing immediate advanced training are later eligible for one or more of 31 "B" and "C" schools in the sonar field and/or submarine school and anti–submarine warfare courses.

On the average, today's Navy technician will have spent a year or more in classrooms during his first four to six years of Navy service. It is not uncommon for a man with one year in the Navy to have spent the entire year in school and have received his third promotion. His year in Navy technical schools will have provided more classroom hours in his particular field than would four years in college engineering.

Today the young man with the talent, inclination and ambition for a technical career will find his opportunities as vast as the scope of the technological revolution itself. In the Navy as in American Society, the technician enjoys the status and rewards of being a key man, needed and respected. The door is wide open to all who meet the standards — the standards of a Navy technician.

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